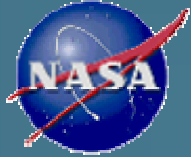# Process

- Architecture Workgroup Results of 3d ICNS Workshop Reviewed
- Architecture and Network Subproject Plans reviewed
  – Feedback solicited at large from entire group
  – Feedback solicited individually
  – Broad discussion themes
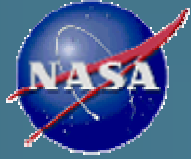
Discussion Topics

- **Vision and Strategic Direction**
  - Vision that defines end state needed to provide context for program and its elements
    - E.G. vision; 3 times current capacity etc
  - Identification of requirements current CNS will not meet; value of network-centric architecture (info. sharing) must be described
  - Discussion on underlining CNS infrastructure to support autonomous requirements
  - Problem statements not sufficiently scoped; too broad
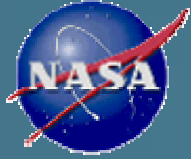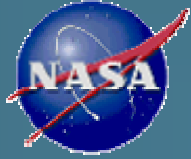
Discussion Topics (cont.)

- Approach
  - CNS architecture must be tied into overall 'Enterprise', high level architecture (includes application requirements)
  - What drives CNS Project > Requirements vs Technology
  - Effective and detailed requirements analysis is critical; not an area to short-change
  - Conduct technology based approach in parallel w. requirements
  - Leverage advancements in ground based systems/architecture; minimize aircraft equipage
  - Comprehensive standards effort will be needed
  - Tie in to RTCA Conops; requirements of DHS and DoD
  - Important to have good business case/CBA
  - Opportunity for value engineering for architecture
  - Technology roadmap needed
  - Leverage efforts in TCA and Space Initiatives

Discussion Topics (cont.)

- Security
  - Architecture needs to address security
  - Challenge to provide secure data in 'real-time'
  - Integrity of information; monitoring intrusion detection
  - Leverage commercial based technologies and systems (eg commercial banking industry)
- Integration of CNS systems
  - Risks need to be identified
  - 'Hidden attributes of current 'stove-piped' systems
    - e.g. redundancy, no single point of failure, graceful degradation
  - Information sharing to maximum extent possible; more information available leads to additional benefits
  - Sensor fusion and integration to provide situational awareness

Discussion Topics (cont)

- **Transition**
  - Acknowledgement - very slow process
  - Recognizes existing NAS architecture planning provides for future evolution
  - 'Human element' drives slow change
  - Minimalist approach critical for aircraft users
  - Wireless Implementation for Surface Apps
- **Architecture Validation**
  - Extensive large scale modeling and simulation needed
  - Partner with DFRC for testing and demonstration
- **Technologies**
  - QoS, security and encryption technologies
  - GRC should get involved in GPS-3
  - 3G Wireless; partner with manufacturers and service providers
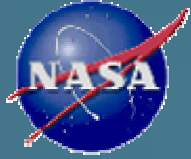
Additional Comments

- Academia working on low TRL studies focusing on modeling/simulation of topologies and traffic patterns for various applications requirements … top-down approach

- Industry approaches that address security, economy,integration through use of hybrid communications architectures

- Excellent tools for architecture modeling and development exist

- Set up mailing list for ongoing discussion
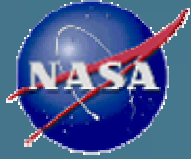
Key Deliverables

- ## Validated CNS Architecture that supports future NAS Infrastructure Vision
  - Validated range of CONOPS
  - Large-scale Simulation and Emulation
  - High level system requirements for future NAS technology development
- ## Integrated technology Roadmap tied to other architecture and planning initiatives